No. 457

REPORT

to the

HONORABLE BOARD OF DIRECTORS

of the

SANTA CLARA VALLEY WATER CONSERVATION DISTRICT

on

PIONEER DITCH RECONSTRUCTION

PROJECT REPORT NO. 2

December 23, 1931.

TD
760
T52
1931
REF

FRED. H. TIBBETTS
CIVIL ENGINEER
ALASKA COMMERCIAL BUILDING
SAN FRANCISCO

TC977S383 T5193 1e .3

OFFICERS

PRESIDENT
LEROY ANDERSON

SECRETARY
R. P. VAN ORDEN

ATTORNEYS
JONES & DOUGLAS

CHIEF ENGINEER
FRED H. TIBBETTS

Santa Clara Valley Water Conservation District

95 AUZERAIS BUILDING

SAN JOSE, CALIFORNIA

DIRECTORS

S. D. FARRINGTON, DIV. 1
LEROY ANDERSON, DIV. 2
R. P. VAN ORDEN, DIV. 3
J. FRED HOLTHOUSE, DIV. 4
RALPH F. SIMONS, DIV. 5
JOHN A. FAIR, DIV. 6
C. D. CAVALLARO, DIV. 7

SANTA CLARA VALLEY WATER [illegible]
LIBRARY
5750 ALMADEN EXPRESSWAY
SAN JOSE, CALIFORNIA [illegible]

OFFICERS

PRESIDENT
LEROY ANDERSON

SECRETARY
R. P. VAN ORDEN

ATTORNEYS
JONES & DOUGLAS

CHIEF ENGINEER
FRED H. TIBBETTS

Santa Clara Valley Water Conservation District

95 AUZERAIS BUILDING

SAN JOSE, CALIFORNIA

DIRECTORS

S. D. FARRINGTON, DIV. 1
LEROY ANDERSON, DIV. 2
R. P. VAN ORDEN, DIV. 3
J. FRED HOLTHOUSE, DIV. 4
RALPH F. SIMONS, DIV. 5
JOHN A. FAIR, DIV. 6
C. D. CAVALLARO, DIV. 7

OFFICERS
PRESIDENT
LEROY ANDERSON
SECRETARY
R. P. VAN ORDEN
ATTORNEYS
JONES & DOUGLAS
CHIEF ENGINEER
FRED H. TIBBETTS

Santa Clara Valley Water Conservation District

95 AUZERAIS BUILDING
SAN JOSE, CALIFORNIA

DIRECTORS
S. D. FARRINGTON, DIV. 1
LEROY ANDERSON, DIV. 2
R. P. VAN ORDEN, DIV. 3
J. FRED HOLTHOUSE, DIV. 4
RALPH F. SIMONS, DIV. 5
JOHN A. FAIR, DIV. 6
C. D. CAVALLARO, DIV. 7

510 Sansome St.,
San Francisco, California.

SUBJECT: S.C.V.W.C.D.-PIONEER DITCH RECONSTRUCTION

PROJECT REPORT NO.2

December 23, 1931.

Hon. Board of Directors,
Santa Clara Valley Water Conservation District,
95 Auzerais Bldg.,
San Jose, California.

Gentlemen:

As instructed by your Honorable Board, I made an inspection on December 1, 1931, of the old Pioneer Ditch diverting from Almaden creek and of a proposed extension southeasterly from the point of the Santa Theresa hills to the old Willow drainage canal.

I was accompanied on this trip by Director Farrington and by a local committee of interested landowners. This inspection was made because of a request from the Landowners Committee that the District investigate the possibility of rehabilitating this old ditch with the object of diverting and spreading flood waters from Almaden Creek on a very porous, absorptive area of developed orchard land immediately southeast of the point of the Santa Theresa Hills.

PIONEER DITCH. A brief description of the Pioneer Ditch is given in the report of Tibbetts and Kieffer to the Santa Clara Valley Water conservation Committee March, 1925, on Page 82 as follows:

> "The Pioneer Ditch System diverted water from Almaden Creek at a point on the right or easterly bank about ten miles south of San Jose, and about one-half mile above the junction of the Almaden and Guadalupe Creek. The ditches were owned and operated by a co-operative company of farmers formed in 1893, and supplied water usually only to members. The maximum capacity of the ditch was about twenty-five second feet. It was used to irrigate an area varying from about 200 to a maximum of about 900 acres. The company was disincorporated in 1909 on account of conflicting water rights, dry years, and growth of pumping plants."

PRESENT CONDITION OF DITCH I followed on foot along the line of the old ditch from the Almaden Creek to the point of the hills accompanied by Mr. Farrington and the Local Committee. The old timber headgate on the bank of the creek is still in good condition and could readily be put into service. To insure diversion into the ditch to the extent here recommended, would require, however, the extension of the ditch a short distance up stream or would require a diversion dam. The latter would be more certain to secure diversion when required. This estimate is accordingly based on the construction of a "sausage dam" of wire netting and cobbles across the bed of the main creek immediately below the headgate.

The culvert underneath the railroad embankment just below the headgate is of ample size and in good condition.

The ditch follows the railroad for a considerable distance and then follows the base of the hills to the right. It is in fair to poor condition, being partly filled in, banks broken down, and full of gopher holes. An old wooden flume crossing local drainage is completely gone and should be replaced with about 50 ft. of new metal flume.

At the point of the hill there is a rock cut about 200 ft. long, which would have to be enlarged. There are some local farm road crossings which would have to be rebuilt.

ENLARGEMENT OF PRESENT DITCH I believe that the present ditch could be enlarged to a capacity of about 50 sec. ft. making it about 3 ft. deep, and 10 ft. wide on top.

From the point of the hills the ditch could either double back along the base of the hill or could proceed southward and eastward as a new ditch, constructed in earth through orchards and alfalfa. Several alternative routes could be used through the orchards to the southeast without materially effecting the cost of the project.

The total length of the old and new ditch to the Miller canal would be about 12,000 ft., this figure being obtained from scaling a large map. There is ample fall and the material for the ditch extension is easy to handle with drag line or teams and scrapers.

COST A detailed cost estimate would require an instrumental survey to determine quantities. Without such a survey, I would give an approximate estimate of the cost of the project, including headworks, capacity 50 cu.ft. per sec. or 100 acre ft. per day, without any right-of-way costs, as $4,260.00.

DITCH SERVICE After leaving the point of the hills surface conditions and well logs indicate that the proposed ditch extension will pass over a highly absorptive gravel area, obviously a portion of the old gravel delta cone of the Almaden and Guadalupe Creeks. Water absorbed into this gravel cone would be defused underground to the south and both southwest and southeast. The location is an excellent one for spreading and absorbing flood waters. Arrangements would have to be made with the farmers for receiving water continuously during flood stages over at least 50 or preferably 100 acres of ground. The ditch itself would not absorb anywhere near all the water diverted and hence "spreading grounds" must be obtained for absorption purposes.

CONCLUSIONS This project is located on a highly absorptive area in a geographically favorable position for well replenishment. It is likely that many other similar projects may be proposed, both for new ditch construction and for the rehabilitation of old ditches. This project in fact is very similar to the district's previous operations on the old Page ditch and to those proposed on the upper Penitencia creek.

All of these projects have this common weakness. The Santa Clara Valley streams are "Flashy" and over aperiod of average years there are relatively short periods of stream-flow available for spreading and hence without reservoir detention and regulation of flood waters, projects of this sort, although useful, cannot be expected to salvage enough waste water to materially effect the existing shortage. The project is not expensive, however, and deserves serious consideration if funds can be made available either wholly by the District or by cooperation with the local interests. This report assumes that the project could be constructed without paying for rights of way, for the use of the old ditch system, or for water rights.

Very respectfully submitted,

Chief Engineer,
SANTA CLARA VALLEY WATER CONSERVATION DIST.

MMT:FLM